this section, have means to make it watertight.

(c) No penetration of a bulkhead in a machinery space by a ventilation duct need have means to make the bulkhead watertight if—

(1) Every part of the duct is at least 30 inches from the side of the OSV; and

(2) The duct is continuously watertight from the penetration to the main deck.

(d) Each penetration of a bulkhead in a machinery space by piping must meet the design requirements for material and pressure in subchapter F of this chapter.

§ 174.200 Damaged stability in machinery spaces.

Each OSV must be shown by design calculations to comply, under each condition of loading and operation, with §§ 174.205 (c) through (f) of this subpart in case of damage between any two watertight bulkheads in each machinery space.

§ 174.205 Damaged stability in general.

(a) *Calculations.* Each OSV carrying more then 16 offshore workers must be shown by design calculations to meet, under each afloat condition of loading and operation, the survival conditions in paragraph (e) of this section in case of the damage specified by paragraph (b) of this section.

(b) *Character of damage.* For paragraph (a) of this section, design calculations must show that the OSV can survive damage at any place other than either the collision bulkhead or a transverse watertight bulkhead unless—

(1) The transverse watertight bulkhead is closer than the longitudinal extent of damage, specified by Table 174.205(b), to the adjacent transverse watertight bulkhead; or

(2) The transverse watertight bulkhead has a step or a recess, which must be assumed damaged, if it is both more than 10 feet in length and located within the transverse extent of damage specified by Table 174.205(b) of this section.

(c) *Extent of damage.* For paragraph (a) of this section, damage must consist of penetrations having the dimensions specified by Table 174.205(b) of this section, except that, if the most disabling penetrations are smaller than the penetrations specified by the Table, damage must consist of the smaller penetrations.

(d) *Permeability of spaces.* For paragraph (a) of this section, the permeability of a floodable space must be as specified by Table 174.205(d) of this section.

(e) *Survival conditions.* An OSV is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

(1) *Final waterline.* The final waterline, in the final stage of sinkage, heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, a tonnage opening, an opening closed by a weathertight door or hatch-cover, or a tank vent fitted with a ball check-valve. This opening does not include an opening closed by a—

(i) Watertight manhole-cover;

(ii) Flush scuttle;

(iii) Small hatch-cover for a watertight cargo-tank that maintains the high integrity of the deck;

(iv) Watertight door in compliance with § 174.210 of this subpart; or

(v) Side scuttle of the non-opening type.

(2) *Angle of heel.* The angle of heel must not exceed 15 degrees.

(3) *Range of stability.* Through an angle of 20 degrees beyond its position of equilibrium after flooding, an OSV must meet the following conditions:

(i) The righting arm curve must be positive.

(ii) The righting arm must be at least 4 inches.

(iii) Each submerged opening must be weathertight. (A tank vent fitted with a ball check-valve is weathertight.)

(4) *Progressive flooding.* Piping, ducts, or tunnels within the assumed extent of damage must be either—

(i) Equipped with arrangements, such as stop check-valves, to prevent progressive flooding of the spaces with which they connect; or

(ii) Assumed in the calculations required by paragraph (a) of this section to permit progressive flooding of the spaces with which they connect.